

WASHINGTON'S CITY ARTERIALS CONDITION REPORT 2008

By Bob Brooks – Highways & Local Programs

BACKGROUND:

In April 2003 the legislature passed the transportation efficiencies bill. This legislation established planning and efficiency goals for the state and local transportation network. Among other provisions of the bill is a requirement for cities to report pavement condition data for their arterial and collector streets beginning with the 2003-2005 biennium (RCW 46.68.113).

To meet this reporting requirement Highways & Local Programs (H&LP) working in partnership with the Association of Washington Cities (AWC) established a split between large and small cities based on a population threshold of 22,500, now raised to 25,000. This is the threshold at which the large cities assume a greater maintenance responsibility for city streets that are also state highways. It was determined that large cities had sufficient resources to survey their street networks and report the results while small cities would need assistance in accomplishing this reporting requirement.

To assist the small cities, H&LP arranged with the WSDOT Materials Laboratory to use their automated data collection van to survey the state's small cities and forward the results of the survey to H&LP for analysis and reporting. Starting in 2006, half the states small cities will be surveyed each year split basically between eastside and westside.

In response to our 2007-2009 biennium request, 25 large cities submitted condition data on 1,323.56 centerline miles of federal functionally classified arterials and 630.94 centerline miles of federal functionally classified collector routes. The small city survey resulted in 79 cities with 471.00 centerline miles of federal functionally classified arterials and 216 cities with 750.33 centerline miles of federal functionally classified collector routes.

The following report constitutes the results of the 2007-2009 biennium survey of the state's large and small cities.

DISCUSSION:

The following table summaries the data for surveyed city streets:

Functional Class	Centerline Miles	Weighted Rating Score
Principal & Minor Arterials	1,794.56	70
Major & Minor Collectors	1,381.27	64
Total – Averages	3,175.83	67

THE ARTERIAL NETWORK:

City Data: The combined principal and minor arterial network information for each city is shown in Appendix A at the back of this report. The data shown in Appendix A represents 85% of the statewide total city arterial mileage as listed in the January 2007 Functional Class Report from the WSDOT's Transportation Data Office . The minimum required by RCW 46.68.113 for the 2007 – 2009 biennium is 80%.

The citywide and statewide Pavement Condition Index (PCI) rating scores were calculated using an average weighted on segment length this biennium. Past biennium's citywide and statewide scores were calculated using a straight average without regard to length. The weighted average provides a more representative picture of the true condition of the arterial network. The weighted statewide arterial average for this biennium was 70 while the straight average was 64. The straight average for arterials for the 2006 pavement report was 67. Based on straight averages only, the statewide arterial score declined 3 points over last biennium. This was as expected. Future surveys will better indicate the level at which the system is deteriorating. All future pavement reports will be calculated using weighted averages.

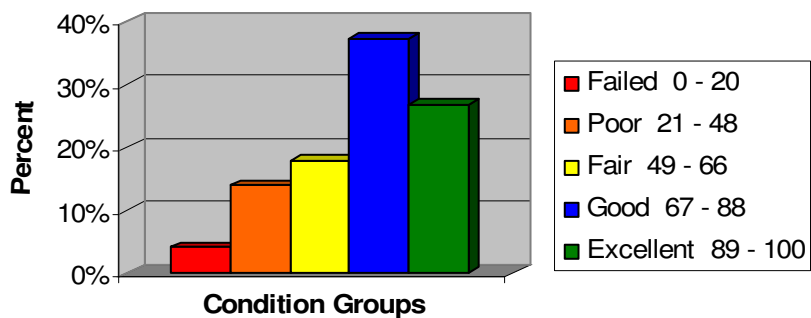
The difference between the weighted arterial rating scores for the states large and small cities was fairly noteworthy and may help illustrate the difference between available resources for these two groups. The weighted arterial score for small cities surveyed was 63 while the weighted score for large cities was 73, a significant 10 point difference.

The International Roughness Index (IRI) reported in the 2006 report has been dropped from this and future reports. There are two reasons for this; first IRI data is collected only for the small city portion of the data set and is not available for the large cities. Second and most importantly, the IRI correlated very poorly with the Pavement Condition Index (PCI) scores for the pavement segments. This may be due to the difficulties of collecting IRI readings in an urban environment, including short segment lengths, traffic congestion, speed restrictions, and traffic signals.

Condition Groups: The following pavement score condition grouping shows the distribution of the arterial system within the various condition groups. The distribution shows that 18% of the arterial mileage falls within the failed to poor categories and that 64% fall within the good to excellent categories. The remaining 18% falls into the central fair category. This distribution is nearly identical to the distribution seen in the 2006 report. This indicates that the arterial system is basically being maintained near its current level.

Condition Group	Centerline Miles	Percentage
Failed 0-20	72.28	4.0%
Poor 21-48	249.45	13.9%
Fair 49-66	321.41	17.9%
Good 67-88	670.81	37.4%
Excellent 89-100	480.61	26.8%
Totals	1,794.56	100.0%

Distribution of arterials within the pavement condition rating groups



Percent arterial network within condition groups

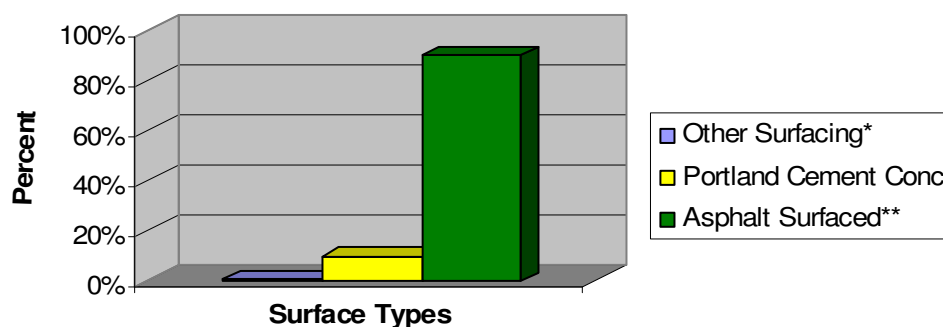
Surface Types: The following table and chart show the distribution of the pavement surface types within the arterial network. As would be expected, the majority of the mileage, 89.6% is comprised of asphalt surfaced streets.

Pavement Type	Centerline Miles	Percentage
Other Surfacing *	12.27	0.7%
Portland Cement Concrete	174.81	9.7%
Asphalt Surfaced **	1,607.48	89.6%
Totals	1,794.56	100.0%

Arterial surface types

* Includes paving brick, gravel, and mixed surfaces

** Includes HMA, composite and BST pavements



Percent arterial network by surface type

THE COLLECTOR NETWORK:

City Data: The combined major and minor collector network information for each city is shown in Appendix A at the back of this report. The data shown in the Appendix represents 82% of the statewide total city collector mileage as listed in the January 2007 Functional Class Report from the WSDOT's Transportation Data Office. Under RCW 47.26.090 the states collector network is considered to be a part of the arterial system.

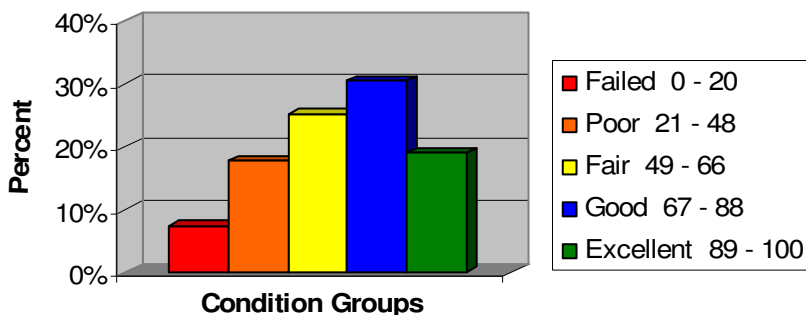
The statewide average weighted collector score for this biennium is 64. The statewide straight average is 62. The straight average for the 2006 report was 63, an inconsequential 1 point drop for the biennium.

The weighted average collector score for small cities surveyed was 60 while the weighted average score for large cities was 69, a 9 point difference. This is consistent with the 10 point difference seen on arterials.

Condition Groups: The following table and chart show the distribution of the collector mileage within the various condition groups. The distribution shows that 25% of the collector mileage falls within the failed to poor category and that 50% of the mileage falls within the very good to excellent categories, a 6% drop from the 2006 report. The remaining 25% falls into the central fair category. The collector distribution indicates that a greater percentage of the overall mileage is contained within the lower ranked condition groups than the arterial network.

Condition Group	Centerline Miles	Percentage
Failed 0-20	103.16	7.5%
Poor 21-48	244.66	17.7%
Fair 49-66	348.20	25.2%
Good 67-88	421.70	30.5%
Excellent 89-100	263.54	19.1%
Totals	1,381.27	100.0%

Distribution of collectors within the pavement condition rating groups



Percent collector network within condition groups

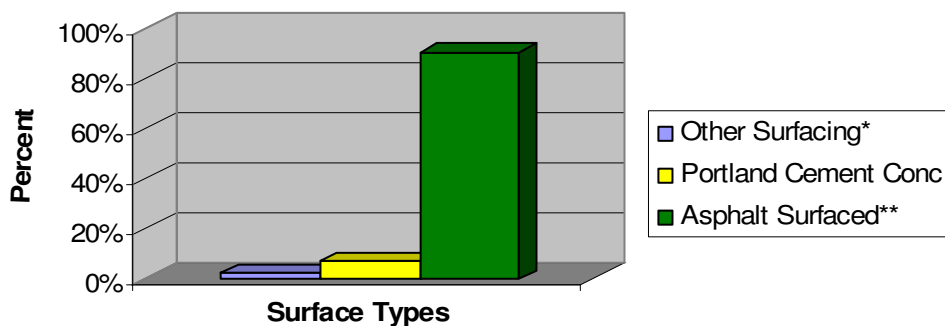
Surface Types: The following table and chart show the distribution of the pavement surface types within the collector network. As would be expected, the majority of the mileage, 90.3% is comprised of asphalt surfaced streets.

Pavement Type	Centerline Miles	Percentage
Other Surfacing *	33.36	2.4%
Portland Cement Concrete	100.15	7.3%
Asphalt Surfaced **	1,247.76	90.3%
Totals	1,381.27	100.0%

Percent collector network by surface type

* Includes paving brick, gravel, and mixed surfaces

** Includes HMA, composite and BST pavements



Collector mileage by surface type



Appendix A - 2008 Pavement Condition Data By City

City	Federal Functionally Classified Arterial C/L Mileage ¹	Weighted Arterial PCI Scores - 2008 ²	Federal Functionally Classified Collector C/L Mileage ¹	Weighted Collector PCI Scores - 2008 ²	Weighted Combined PCI Scores - 2008 ³
ABERDEEN	5.64	56	15.70	63	61
AIRWAY HEIGHTS			1.50	70	70
ALBION			1.06	94	94
ALGONA	1.83	75	3.87	57	63
ALMIRA			1.72	70	70
ANACORTES	7.98	67	13.17	68	68
ARLINGTON	6.59	54	3.25	42	50
ASOTIN	1.46	96			96
AUBURN	22.52	69	18.93	59	64
BAINBRIDGE ISLAND	24.63	71	14.90	70	71
BATTLE GROUND	6.12	30	2.12	47	34
BEAUX ARTS VILLAGE			0.56	80	80
BELLINGHAM	41.94	81	26.67	78	80
BLACK DIAMOND	4.22	63	0.75	62	63
BLAINE			3.64	72	72
BONNEY LAKE	1.91	63	6.28	66	65
BREWSTER			2.89	70	70
BRIDGEPORT			2.98	73	73
BRIER			4.63	79	79
BUCKLEY	4.02	58	2.64	51	55
BUCODA			0.51	59	59
BURLINGTON	5.28	77	6.11	74	75
CAMAS	14.23	69	8.48	66	68
CASHMERE			3.28	50	50
CASTLE ROCK			3.28	48	48
CATHLAMET			0.78	98	98
CENTRALIA	7.71	74	13.32	61	66
CHEHALIS	10.89	71	3.31	68	70
CHELAN			1.61	82	82
CHENEY	3.76	79	5.80	67	72
CHEWELAH	0.60	34	2.87	21	23
CLARKSTON	3.08	64	7.47	60	61
CLE ELUM			1.42	55	55
CLYDE HILL	0.50	64	2.99	75	73
COLFAX			0.37	48	48
COLLEGE PLACE	5.35	23	1.99	21	22
COLTON			0.35	75	75
COLVILLE			4.75	34	34
CONCONULLY			0.99	82	82
CONCRETE			1.52	44	44



Appendix A - 2008 Pavement Condition Data By City - Cont

City	Federal Functionally Classified Arterial C/L Mileage ¹	Weighted Arterial PCI Scores - 2008 ²	Federal Functionally Classified Collector C/L Mileage ¹	Weighted Collector PCI Scores - 2008 ²	Weighted Combined PCI Scores - 2008 ³
CONNELL			2.16	87	87
COSMOPOLIS			1.03	67	67
COULEE DAM			1.64	71	71
COUPEVILLE			3.30	79	79
COVINGTON	4.69	54	3.61	68	60
CRESTON			0.84	76	76
CUSICK			0.69	66	66
DARRINGTON			1.37	34	34
DAVENPORT			2.90	85	85
DAYTON			3.78	52	52
DEER PARK			2.66	35	35
DES MOINES	5.91	68	4.88	80	73
DUPONT	0.87	76	0.44	100	84
DUVALL	0.10	98	0.95	86	87
EAST WENATCHEE	7.35	41	6.38	62	51
EATONVILLE	0.65	43	0.90	53	49
EDGEWOOD	9.36	89	11.13	62	74
EDMONDS	9.18	77	10.65	52	64
ELECTRIC CITY			0.88	74	74
ELLENSBURG	17.43	55	7.86	43	51
ELMA			2.97	62	62
ELMER CITY			1.46	85	85
ENDICOTT			1.34	88	88
ENTIAT			0.10	78	78
ENUMCLAW	6.14	64	6.05	54	59
EPHRATA	6.89	69	3.39	71	70
EVERETT	51.49	81	23.77	76	79
EVERSON			0.55	78	78
FAIRFIELD			1.78	77	77
FARMINGTON			1.56	50	50
FEDERAL WAY	25.07	75	14.32	86	79
FERNDALE	7.55	73	8.74	68	70
FIFE	12.21	64	4.94	44	58
FIRCREST	3.57	55	2.85	61	58
FORKS			2.55	67	67
FRIDAY HARBOR			3.08	64	64
GARFIELD			0.57	30	30
GEORGE			1.55	77	77
GIG HARBOR	16.34	80	2.62	61	77
GOLDENDALE			3.52	71	71
GRAND COULEE			1.92	62	62
GRANDVIEW	8.03	48	6.33	48	48



Appendix A - 2008 Pavement Condition Data By City - Cont

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GRANGER			3.14	36	36
GRANITE FALLS	1.41	46	0.30	34	44
HAMILTON			0.82	36	36
HARRAH			1.42	79	79
HARRINGTON			0.71	74	74
HARTLINE			0.12	67	67
HATTON			0.35	71	71
HOQUIAM	1.76	70	13.14	57	59
HUNTS POINT			1.11	95	95
ILWACO			1.29	59	59
IONE			0.12	47	47
ISSAQUAH	13.93	69	7.69	65	68
KAHLOTUS			0.27	69	69
KALAMA			6.33	73	73
KELSO	9.83	61	11.56	60	60
KENMORE	7.60	71	6.59	87	78
KENNEWICK	48.46	89	19.40	83	87
KENT	33.03	82	13.66	82	82
KETTLE FALLS			2.18	53	53
KIRKLAND	21.93	52	30.66	62	58
KITTITAS			1.83	46	46
KRUPP			0.60	78	78
LA CENTER			1.79	59	59
LA CONNER			1.71	83	83
LACEY	27.06	80	6.27	91	82
LACROSSE			1.26	72	72
LAKE FOREST PARK	1.50	47	1.99	79	65
LAKE STEVENS	1.41	50	2.67	69	62
LAKEWOOD	46.39	82	21.94	81	82
LAMONT			0.43	29	29
LANGLEY			4.49	75	75
LATAH			1.04	14	14
LEAVENWORTH			1.29	43	43
LIND			1.88	86	86
LONG BEACH			5.40	50	50
LONGVIEW	14.75	83	17.27	76	79
LYNDEN	5.89	94	6.44	65	79
MABTON			1.00	67	67
MALDEN			2.30	14	14
MANSFIELD			1.39	84	84
MAPLE VALLEY	0.96	57	3.15	74	70
MARYSVILLE	11.51	87	3.67	82	86



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MATTAWA			2.04	32	32
MC CLEARY			0.99	69	69
MEDICAL LAKE			6.46	40	40
MEDINA	0.84	65	4.88	81	79
MERCER ISLAND	5.08	75	18.37	80	79
MESA			0.97	47	47
MILL CREEK	2.11	93	4.81	80	84
MILLWOOD	0.96	50	1.43	62	57
MILTON	2.65	60	2.48	29	45
MONROE	3.94	64	0.53	35	61
MONTESANO			4.52	21	21
MORTON			0.34	72	72
MOSES LAKE	12.89	45	12.05	48	46
MOSSYROCK			0.45	65	65
MOUNT VERNON	20.24	75	7.76	82	77
MOUNTLAKE TERRACE	9.26	61	9.07	49	55
MOXEE	1.35	51	1.78	76	65
MUKILTEO	1.67	64	10.45	57	58
NACHES			1.39	76	76
NAPAVINE	3.86	72			72
NESPELEM			0.88	65	65
NEWCASTLE	5.88	57	3.13	64	59
NEWPORT			1.93	57	57
NORMANDY PARK			8.28	64	64
NORTH BEND	2.32	47	2.22	52	49
NORTH BONNEVILLE			1.00	63	63
NORTHPORT			1.38	49	49
OAK HARBOR	14.27	70	5.47	73	71
OAKESDALE			1.00	47	47
OAKVILLE			0.48	37	37
OCEAN SHORES			22.87	85	85
ODESSA			0.64	39	39
OKANOGAN			1.56	52	52
OMAK			2.23	52	52
OROVILLE			1.21	72	72
ORTING	0.72	10			10
OTHELLO	7.77	30	3.02	25	29
PACIFIC	3.11	62	5.72	47	52
PALOUSE			0.61	72	72
PASCO	28.35	78			78
PATEROS			1.43	77	77
PE ELL			0.48	23	23



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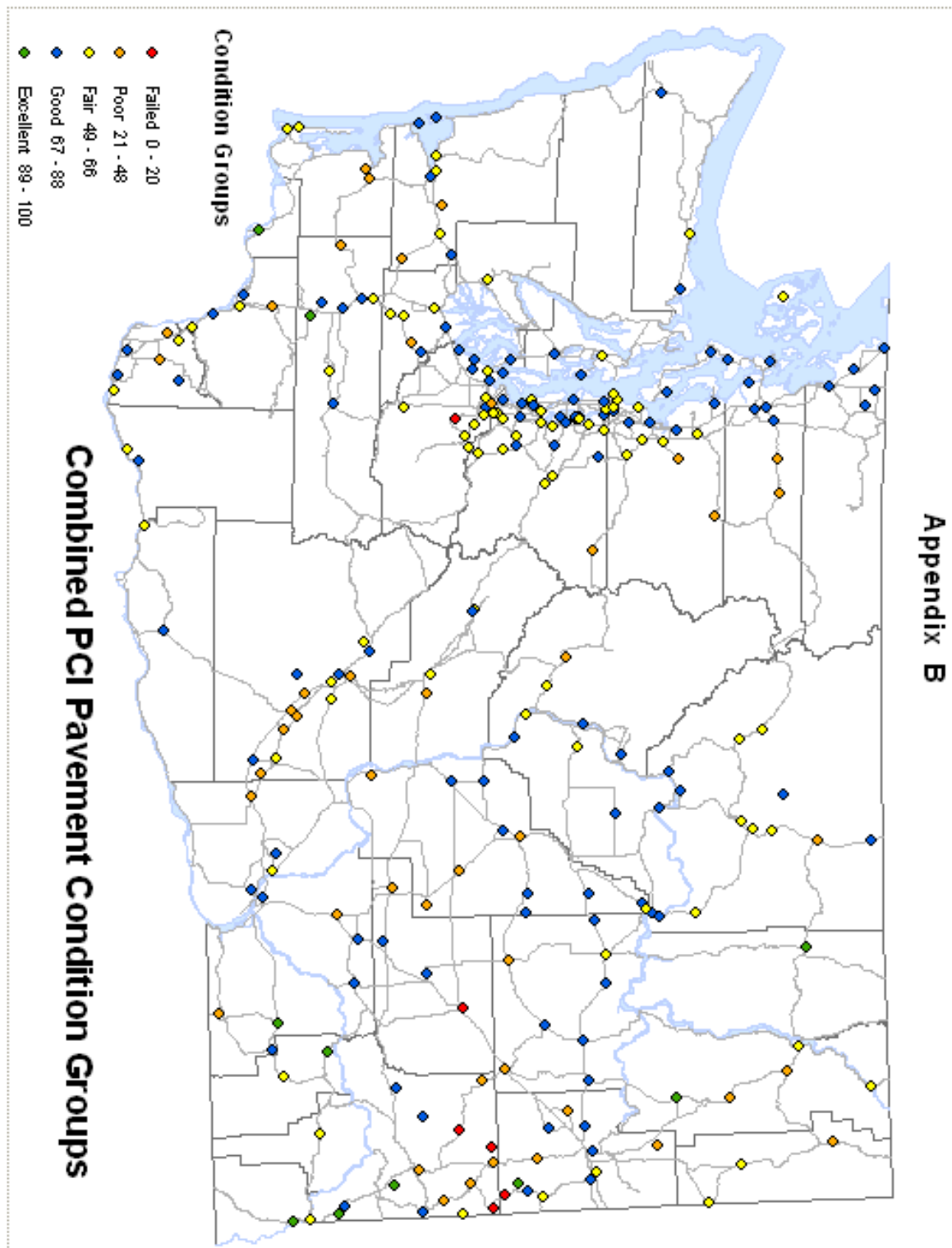
City	Federal Functionally Classified Arterial C/L Mileage ¹	Weighted Arterial PCI Scores - 2008 ²	Federal Functionally Classified Collector C/L Mileage ¹	Weighted Collector PCI Scores - 2008 ²	Weighted Combined PCI Scores - 2008 ³
POMEROY			1.19	66	66
PORT ANGELES	5.88	74	30.99	57	60
PORT ORCHARD	6.72	69	3.24	79	72
POULSBO	6.44	67	2.66	44	60
PRESCOTT			0.63	89	89
PROSSER			8.74	48	48
QUINCY	3.32	62	3.55	72	67
RAINIER			1.95	37	37
RAYMOND			2.02	47	47
REARDAN			0.59	81	81
RENTON	35.64	51	21.54	58	54
REPUBLIC			2.01	89	89
RICHLAND	40.55	63	10.47	62	63
RIDGEFIELD			3.92	43	43
RITZVILLE			4.45	19	19
RIVERSIDE			1.34	61	61
ROCK ISLAND	1.71	87			87
ROCKFORD			0.44	49	49
ROSALIA			1.95	26	26
RUSTON			0.59	75	75
SEATAC	19.90	64	9.91	81	70
SEATTLE	309.82	70	141.41	64	68
SEDRO-WOOLLEY	3.63	75	7.91	68	70
SELAH	2.95	46	2.11	36	42
SEQUIM			4.10	76	76
SHELTON	6.95	61	7.99	41	50
SHORELINE	18.73	76	16.43	72	74
SKYKOMISH			1.06	26	26
SNOHOMISH	3.74	55	6.29	55	55
SNOQUALMIE			1.81	49	49
SOAP LAKE			2.87	46	46
SOUTH BEND			4.04	41	41
SOUTH CLE ELUM			1.21	81	81
SOUTH PRAIRIE			0.64	51	51
SPANGLE			0.50	21	21
SPOKANE	156.19	70	57.44	60	67
SPOKANE VALLEY	90.20	79	33.76	73	77
SPRAGUE			1.46	39	39
SPRINGDALE			0.07	100	100
ST. JOHN			1.72	7	7
STANWOOD			4.03	70	70
STARBUCK			0.55	90	90



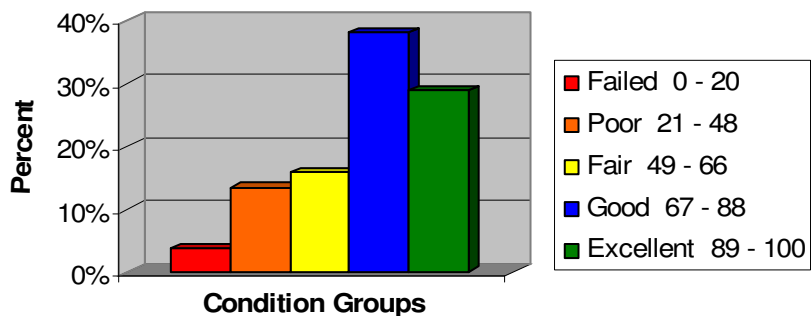
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City	Federal Functionally Classified Arterial C/L Mileage ¹	Weighted Arterial PCI Scores - 2008 ²	Federal Functionally Classified Collector C/L Mileage ¹	Weighted Collector PCI Scores - 2008 ²	Weighted Combined PCI Scores - 2008 ³
STEILACOOM	7.40	71			71
STEVENSON			2.79	79	79
SUMNER	9.29	52	10.01	52	52
SUNNYSIDE	9.75	46	8.04	54	50
TACOMA	127.65	69	65.73	68	69
TEKOA			0.95	10	10
TENINO	0.10	48	2.61	51	51
TIETON			3.08	50	50
TOLEDO			0.11	97	97
TONASKET			1.10	47	47
TOPPENISH	2.71	32	4.63	25	28
TUKWILA	18.52	67	16.65	57	62
TUMWATER	16.38	63	11.15	60	62
TWISP			1.36	60	60
UNION GAP	6.84	42	1.81	84	51
UNIONTOWN			0.85	96	96
VANCOUVER	63.80	74	39.45	73	74
WAITSBURG			1.57	80	80
WAPATO			3.89	37	37
WARDEN			2.64	24	24
WASHOUGAL	7.30	35	7.66	62	49
WATERVILLE			2.60	62	62
WAVERLY			0.82	90	90
WEST RICHLAND	3.11	87	8.45	63	69
WESTPORT			1.38	82	82
WHITE SALMON			0.57	50	50
WILBUR			1.70	62	62
WILSON CREEK			1.99	67	67
WINLOCK			0.98	76	76
WINTHROP			1.49	64	64
WOODINVILLE	8.31	60	3.69	48	56
WOODLAND			3.03	49	49
WOODWAY			2.35	63	63
YACOLT			1.06	72	72
YAKIMA	53.25	75	14.95	80	76
YARROW POINT			1.21	60	60
YELM			6.63	77	77
ZILLAH			3.26	46	46
STATEWIDE TOTALS	1,794.56	70	1,381.27	64	67
Straight Averages		64		62	62

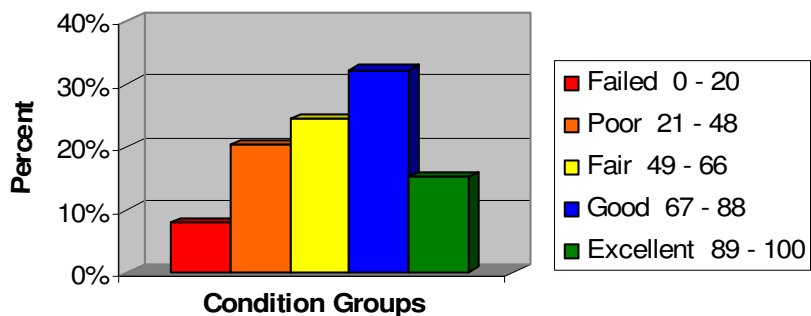
1. Federally functionally classified arterial and collector mileage from WSDOT functional class database, effective 1-25-07
2. Arterial and collector Pavement Condition Index (PCI) scores weighted on segment length.
3. Combined city PCI scores weighted on arterial and collector mileage.



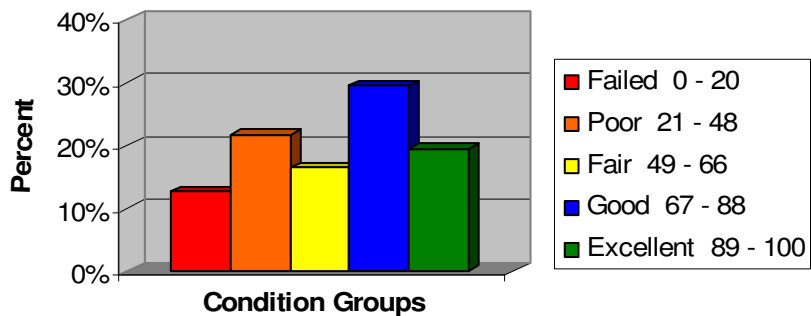
Appendix C



Arterial and Collector Mileage Distribution – Large Cities > 25,000



Arterial and Collector Mileage Distribution – Medium Cities 5,000 to 25,000



Arterial and Collector Mileage Distribution – Small Cities < 5,000